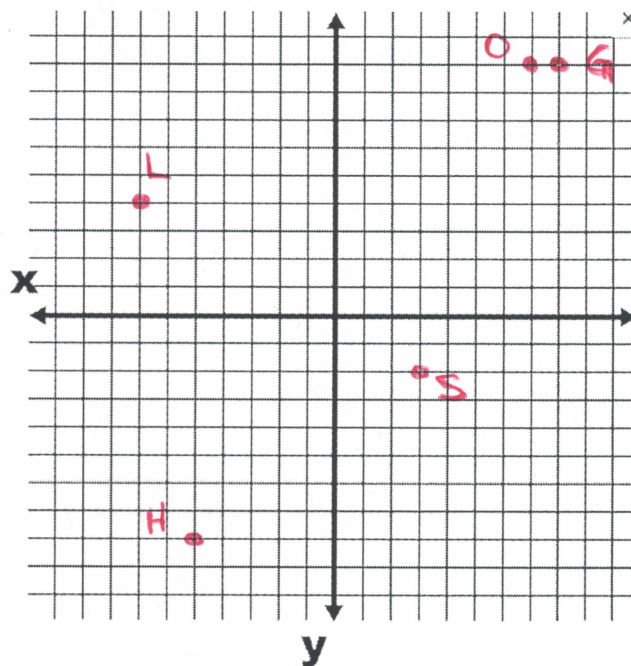


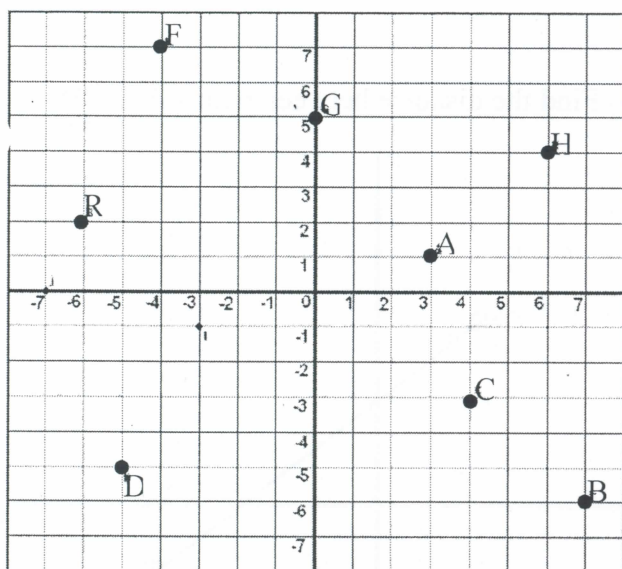
NGA: Coordinate Plane Review

Plot the following points on the given graph below.

- 1) G (8, 9)
- 2) O (7, 9)
- 3) L (-7, 4)
- 4) H (-5, -8)
- 5) S (3, -2)



Write the coordinates of the following points.



6) F

$(-4, 7)$

7) G

$(0, 5)$

8) H

$(6, 4)$

9) D

$(-5, -5)$

10) C

$(4, -3)$

What are some other words that we can use instead of “distance”?

HOW FAR

LENGTH

Think... distance formula!

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

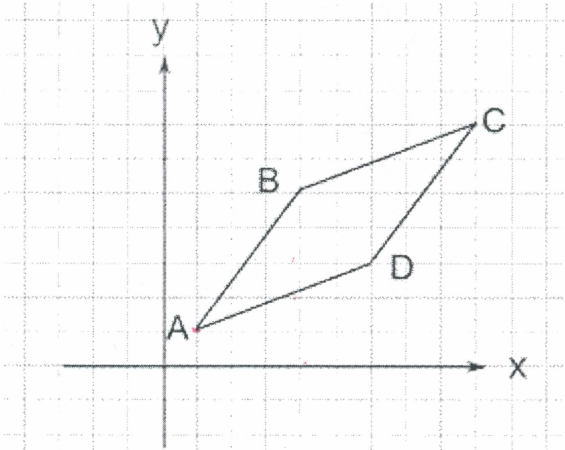
11) Find the distance between (1, 2) and (4, 6).

$$\begin{aligned} d &= \sqrt{(4-1)^2 + (6-2)^2} \\ &= \sqrt{3^2 + 4^2} \\ &= \sqrt{9+16} \\ &= \sqrt{25} \\ &= 5 \end{aligned}$$

12) Find the distance between E and G. Point E is at (10, 15) point G is at (-4, -7).

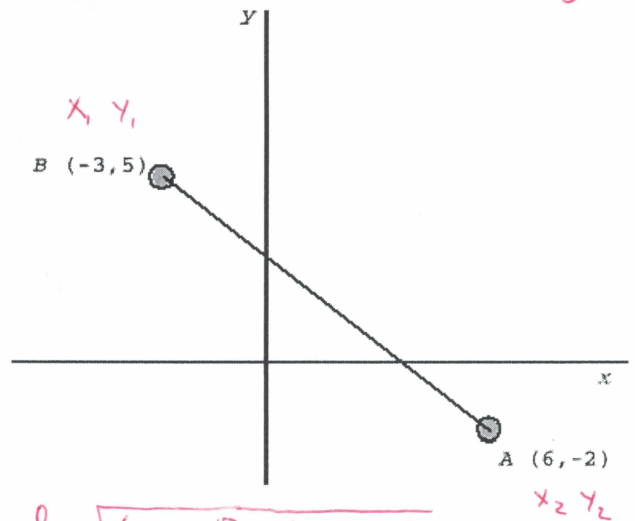
$$\begin{aligned} d &= \sqrt{(-4-10)^2 + (-7-15)^2} \\ &= \sqrt{(-14)^2 + (-22)^2} \\ &= \sqrt{196 + 484} \\ &= \sqrt{680} \\ &\approx 26.0768 \end{aligned}$$

13) Find the distance between point A and point B.



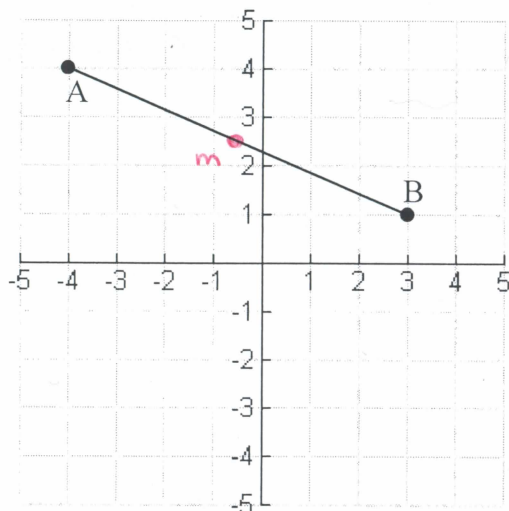
$$\begin{aligned} A(1, 1) & \quad x_1, y_1 \\ B(4, 5) & \quad x_2, y_2 \\ d &= \sqrt{(4-1)^2 + (5-1)^2} \\ &= \sqrt{3^2 + 4^2} \\ &= \sqrt{9+16} \\ &= \sqrt{25} \\ &= 5 \end{aligned}$$

14) Find the distance between points A and B.



$$\begin{aligned} B(-3, 5) & \quad x_1, y_1 \\ A(6, -2) & \quad x_2, y_2 \\ d &= \sqrt{(6-(-3))^2 + (-2-5)^2} \\ &= \sqrt{9^2 + (-7)^2} \\ &= \sqrt{81+49} \\ &= \sqrt{130} \\ &\approx 11.4 \end{aligned}$$

15) Find the midpoint of line  $\overline{AB}$ .



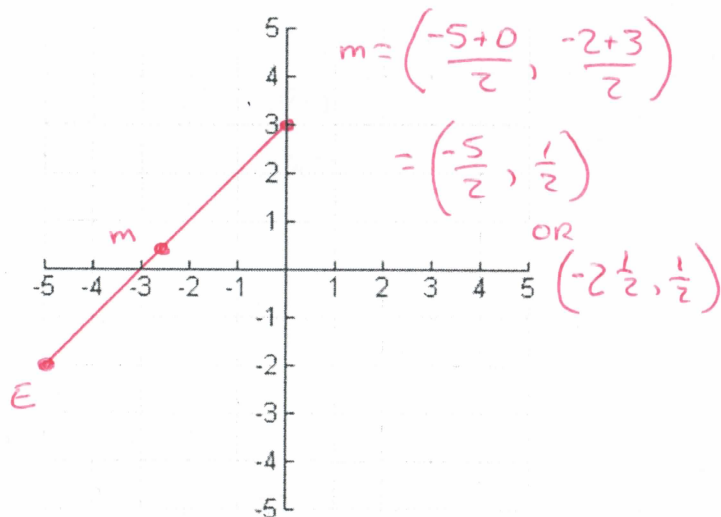
Think... Midpoint!

$$\begin{matrix} A(x_1, y_1) \\ B(x_2, y_2) \end{matrix} \quad m = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$\begin{aligned} A &= (-4, 4) \\ B &= (3, 1) \\ m &= \left( \frac{-4 + 3}{2}, \frac{4 + 1}{2} \right) \\ &= \left( -\frac{1}{2}, \frac{5}{2} \right) \\ &\text{OR } \left( -\frac{1}{2}, 2\frac{1}{2} \right) \end{aligned}$$

16) Find the midpoint of  $\overline{EF}$ .

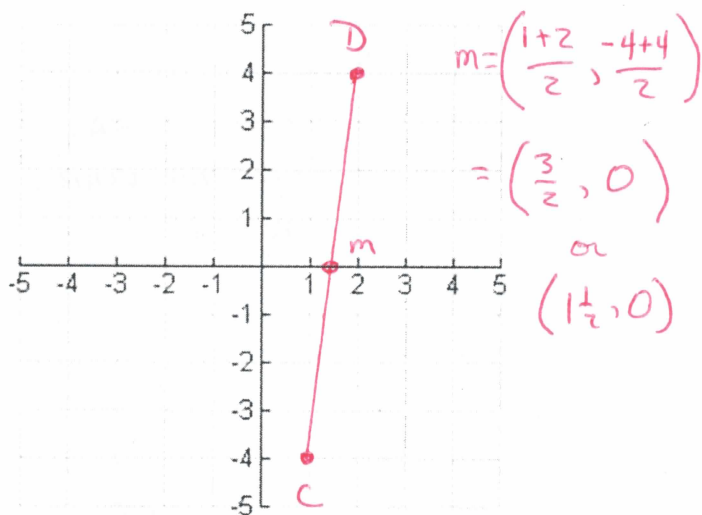
E (-5, -2) F (0, 3)



$$\begin{aligned} m &= \left( \frac{-5 + 0}{2}, \frac{-2 + 3}{2} \right) \\ &= \left( -\frac{5}{2}, \frac{1}{2} \right) \\ &\text{OR } \left( -2\frac{1}{2}, \frac{1}{2} \right) \end{aligned}$$

17) Find the midpoint of  $\overline{CD}$ .

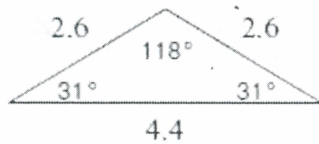
C (1, -4) D (2, 4)



$$\begin{aligned} m &= \left( \frac{1 + 2}{2}, \frac{-4 + 4}{2} \right) \\ &= \left( \frac{3}{2}, 0 \right) \\ &\text{OR } \left( 1\frac{1}{2}, 0 \right) \end{aligned}$$

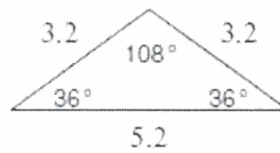
Classify by each triangle by angle and sides

18)



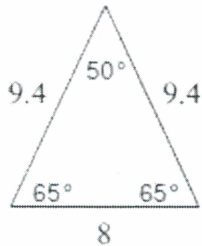
OBTUSE  
ISOSCELES

19)



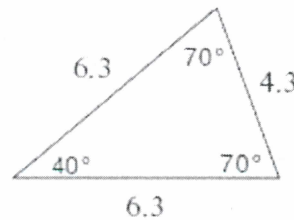
OBTUSE  
ISOSCELES

20)



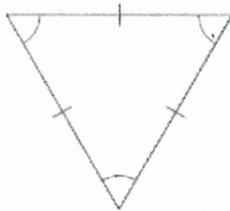
ACUTE  
ISOSCELES

21)



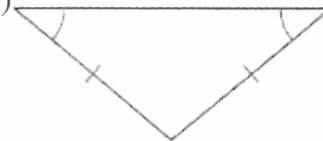
ACUTE  
ISOSCELES

22)



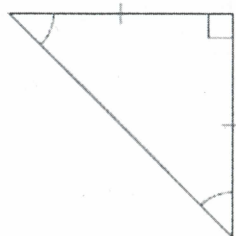
EQUILATERAL  
EQUIANGULAR  
ACUTE

23)



OBTUSE  
ISOSCELES

24)



RIGHT  
ISOSCELES

25)



RIGHT  
SCALENE

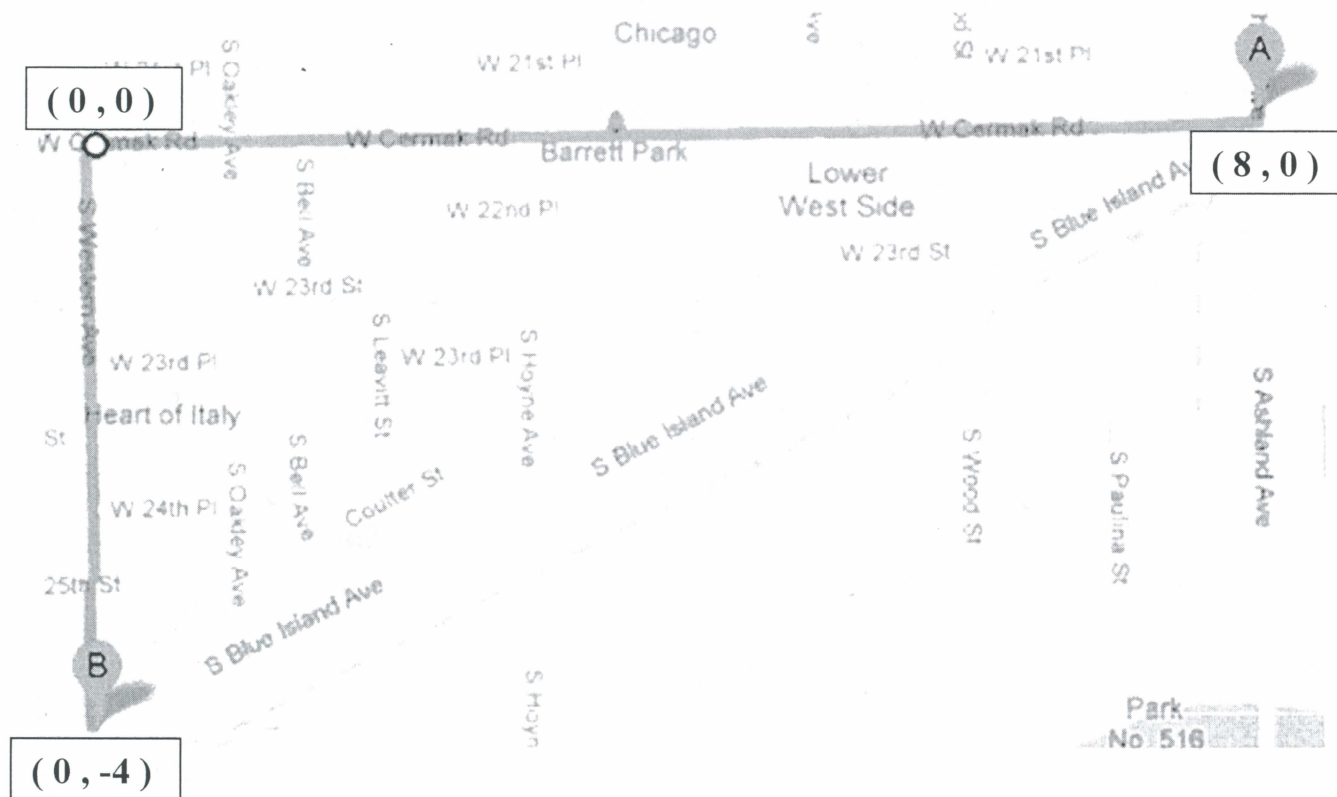
Sketch an example of the type of triangle described. Mark the triangle to indicate what information is shown.

26) Equilateral



27) obtuse isosceles





Julio and Carlos have agreed to meet up after school at the YMCA (Point B on the map). They each leave school (Point A on the map) separately. Carlos walks 8 blocks along Cermak to Western, and then turns south and walks 4 more blocks (following the route marked on the map). Julio walks directly along Blue Island (the straight diagonal on the map). How much farther does Carlos walk than Julio? You must justify your answer with calculations.

$$\text{Distance Carlos} = 8 + 4 \\ = 12 \text{ Blocks}$$

$$\text{Distance Julio} = \sqrt{(8-0)^2 + (0-4)^2} \\ = \sqrt{8^2 + 4^2} \\ = \sqrt{64 + 16} = \sqrt{80} \approx 8.9 \text{ Blocks}$$

Julio walks 8.9 Blocks,  
Carlos walks 12 Blocks.  
Therefore, Carlos walks  
3.1 Blocks farther than  
Julio

Barrett Park is half-way along Carlos's walk down Cermak. What is the distance between Barrett Park and the YMCA (Point B)?

BP is midpoint of Cermak segment

$$\left( \frac{0+8}{2}, \frac{0+0}{2} \right) \\ (4, 0)$$

Distance between  
BP (4, 0)  
YMCA (0, -4)

$$= \sqrt{(0-4)^2 + (-4-0)^2} \\ = \sqrt{(-4)^2 + (-4)^2} \\ = \sqrt{16 + 16} \\ = \sqrt{32} \approx 5.7 \text{ Blocks}$$